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**D E C I S I O N**  
**of 26 May 2003**

**Case Number:** T 0357/00 - 3.3.6

**Application Number:** 93309120.9

**Publication Number:** 0598586

**IPC:** C11D 17/00

**Language of the proceedings:** EN

**Title of invention:**  
Detergent compositions

**Patentee:**  
UNILEVER PLC, et al

**Opponent:**  
The Procter & Gamble Company

**Headword:**  
C<sub>12</sub>-alcohol/UNILEVER

**Relevant legal provisions:**  
EPC Art. 54(1)

**Keyword:**  
"Novelty (no)"

**Decisions cited:**  
T 0004/83, T 0189/84, T 0056/87, T 0323/87, T 0424/86,  
T 0124/87, T 0130/89, T 0666/89

**Catchword:**  
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Case Number: T 0357/00 - 3.3.6

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.6  
of 26 May 2003

**Appellants:**  
(Proprietors of the patent) UNILEVER PLC  
Unilever House,  
Blackfriars  
London EC4P 4BQ (GB)

**Representative:**  
Ford, Michael Frederick  
MEWBURN ELLIS  
York House  
23 Kingsway  
London WC2B 6HP (GB)

**Respondent:**  
(Opponent) The Procter & Gamble Company  
One Procter & Gamble Plaza  
Cincinnati, Ohio 45202 (US)

**Representative:**  
Lawrence, Peter Robin Broughton  
GILL JENNINGS & EVERY  
Broadgate House  
7 Eldon Street  
London EC2M 7LH (GB)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 1 February 2000  
revoking European patent No. 0598586 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** P. Krasa  
**Members:** G. N. C. Raths  
C. Holtz

## Summary of Facts and Submissions

- I. This appeal is from the Opposition Division's decision revoking European patent No. 0 598 586 relating to detergent compositions and containing 14 claims.

Claim 1 reads:

"1. A tablet of compacted detergent powder comprising a surfactant system comprising a nonionic surfactant, which comprises a condensation product of ethylene oxide with aliphatic alcohol, at least one detergency builder and optionally other detergent ingredients, characterised in that at least 25% by weight of the alcohol from which the nonionic condensation product is derived has an alkyl chain length below C<sub>12</sub>, so that the average alkyl chain length is below C<sub>12</sub>."

Independent Claim 14 was directed to the use of the nonionic surfactant.

- II. An opposition was filed, requesting revocation of the patent on the grounds of added subject-matter (Article 100(c) EPC), insufficiency of disclosure (Article 100(b) EPC), lack of novelty and of inventive step (Articles 100(a), 52(1), 54(1), 56 EPC). In support the following documents were cited, *inter alia*:

(1) US-A-5 133 892

(2) US-A-4 320 026

(3) US-A-4 536 314

(5) EP-A-0 466 485

(6) US-A-4 370 250

(7) EP-A-0 355 626

In the course of the opposition procedure, under cover of the letter dated 23 September 1999, the opponent (now the respondent) filed

(10) "Dobanol", Technical Bulletin UD/014, high quality detergent range primary alcohols, Shell Chemicals UK Ltd, April 1988.

III. In its decision, the Opposition Division held that the subject-matter of Claim 1 as granted as well as of the respective Claim 1 of the two auxiliary requests submitted by the proprietors (now appellants) in the course of the opposition procedure was novel over documents (1), (2), (3) and (6), but did not involve an inventive step over documents (10) and (5), or (10) and (7).

IV. The appellants filed an appeal against this decision.

V. The appellants requested that the decision under appeal be set aside and that the European patent be maintained as granted and the Opposition dismissed, or failing that, be maintained in the amended form set forward in any of the auxiliary requests which were annexed to the written decision of the Opposition Division.

A first auxiliary request and a second auxiliary request were annexed to the impugned decision.

V.1 First auxiliary request

The set of Claims 1 to 14 of the first auxiliary request differed from the set of Claims 1 to 14 as granted in that the passage "a surfactant system comprising a nonionic surfactant, which comprises a condensation product of ethylene oxide with aliphatic alcohol, at least one detergency builder" of Claim 1 of the main request was replaced by "from 5 to 50% by weight of a surfactant system comprising from 5 to 30% by weight of the tablet of nonionic surfactant, which comprises a condensation product of ethylene oxide with aliphatic alcohol so as to contain only ethylene oxide groups attached to the aliphatic alcohol, from 5 to 80% by weight of at least one detergency builder".

V.2 Second auxiliary request

The set of claims 1 to 13 of the second auxiliary request differed from the set of claims 1 to 14 of the first auxiliary request in that the passage "of at least one detergency builder" of Claim 1 of the first auxiliary request was replaced by "(anhydrous basis) of an alkali metal aluminosilicate"; further, in claim 14 of the first auxiliary request the amounts of detergent active and of alkali metal aluminosilicate were specified. Claim 12 of the first auxiliary request was deleted and the remaining claims renumbered.

VI. The appellants' arguments were in summary as follows:

1. By simply referring to document (10), the Opposition Division failed to apply correctly the problem-solution approach. This document described Dobanol 91-6, comprising  $18 \pm 4\%$  C<sub>9</sub>-alcohol,  $50 \pm 6\%$  C<sub>10</sub>-alcohol,  $32 \pm 5\%$  C<sub>11</sub>-alcohol (table 1 of page 6) (i.e. at least 25% of the alcohol has an alkyl chain length below C<sub>12</sub> and also the average alkyl chain length is below C<sub>12</sub>) which by a conventional ethoxylation technique led to a conventional detergent. However, document (10) did not mention compacted detergent powder tablets and was not a proper starting point for evaluating inventive step. Since the claimed tablets displayed a surprising effect consisting in a high dissolution and dispersion rate which had been ignored by the Opposition Division, T 130/89 relating to the use of a known material having known properties, did not apply to the present case.
2. A promising starting point could have been document (5) dealing with the same technical problem as the patent in suit, i.e. high dissolution and dispersion rate of the detergent tablets (page 2, lines 14 to 15). It would have been clear that the solution according to document (5) would not have led the skilled person to the claimed subject-matter.
3. According to document (5), rapid dissolution and high tablet strength was obtained with condensation products comprising alcohols of 8 to 22 carbon atoms whereas according to the patent

in suit the alcohol had an alkyl chain below C<sub>12</sub> (abbreviated by "<C<sub>12</sub>") . This document did not suggest that the nature of the nonionic compound affected the dissolution rate of the tablets.

4. The comparative tests submitted by the appellants under cover of the letter of 26 February 2001 showed that the dissolution rates of tablets comprising a nonionic surfactant comprising a <C<sub>12</sub>-alcohol were higher than those of tablets comprising a nonionic surfactant comprising a >C<sub>12</sub>-alcohol.

VII. The respondent disputed these submissions. Its arguments can be summarized as follows:

1. The invention was not sufficiently disclosed to achieve a beneficial effect with all the embodiments covered by Claim 1 (Article 100(b) EPC).
2. The subject-matter of Claim 1 lacked novelty
  - over document (1), since Claim 1 did not exclude a condensation product of an aliphatic alcohol and ethylene oxide in which the aliphatic alcohol has chain length of from C<sub>6</sub> to C<sub>10</sub> and contains 4 to 15 ethylene oxide units;
  - over document (2), which disclosed tablets comprising non-ionic surfactants resulting from Neodol 91-6 (column 2, line 38, column 2, line 47), which is Dobanol 91-6, sold under the tradename Neodol in the US (document (10),

page 5, right-hand column, paragraph 5, first sentence). This material was a condensation product of ethylene oxide with an aliphatic alcohol having an average alkyl chain length of from 9 to 11, i.e. less than 12;

- over document (5), which disclosed the use of nonionic surfactants being a condensation product of ethylene oxide with a C<sub>8</sub>-alcohol (page 6, line 15).

3. The subject-matter of Claim 1 lacked an inventive step

- because the problem of rapid dissolution and dispersion and tablet strength was not solved
  - by a tablet containing 0.5% or less of the condensation product which amount could not reasonably be expected to make any useful contribution to the properties of the product;
  - by a tablet which was allowed to contain further non specified amounts of other condensation products of ethylene oxide with other aliphatic alcohols than those specified in Claim 1;
  - by a tablet containing a condensation product of which the length of the ethoxy chain was not defined, and thus the properties might vary in function of said



chain length (letter of 26 October 2000, page 3, paragraphs 1, 2 and 3).

- because Dobanol 91-5, 6 or 8 were conventional detergent primary alcohol products (see letter dated 26 October 2000, page 4, lines 5 to 8, and document (10), page 7, table 4) falling within the range of nonionic condensation products derived from alcohol with an average alkyl chain length below C<sub>12</sub> and inevitably would have been used by a skilled person in view of their contribution to the cleaning performance of the tablet.

VIII. The appellants requested in writing that the decision under appeal be set aside and the patent be maintained on the basis of the main request or alternatively on the basis of one of the auxiliary requests 1 or 2.

The respondent requested that the appeal be dismissed.

IX. Under cover of the letter dated 17 March 2003 the appellants withdrew their request for oral proceedings which had been scheduled for 26 May 2003 and so did the respondent under cover of its letter dated 25 March 2003. At the beginning of the oral proceedings, which took place as scheduled, the Chairman noted that none of the parties were present and announced that the Board would take a decision based on the written appeal proceedings. After deliberation of the Board, the Chairman announced the decision of the Board.

## Reasons for the Decision

### 1. *Article 123 (2) EPC*

#### 1.1 Claim 1 of the Main request, First and Second auxiliary requests

The Board is satisfied that the subject-matter of Claim 1 of the respective requests meets the requirements of Article 123(2) EPC.

Since the requests fail for other reasons, no detailed reasons need to be given.

### 2. *Insufficiency of disclosure*

The respondent submitted that in case the appellant insisted on a beneficial effect to be displayed by all the tablets covered by Claim 1, then the patent would not teach how to achieve this objective (letter of 26 October 2000, page 1, paragraph 2)

In this respect the Board finds that the ingredients and their amounts to be used for manufacturing the claimed tablets are clearly disclosed (see patent in suit, page 3, line 1 to page 7, line 35; in particular page 5, lines 46 to 47, lines 63 to 64 and page 6, lines 17 to 18). Therefore, a person skilled in the art is able to manufacture such tablets. Consequently, the invention is disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

The Board is satisfied that Claim 1 of the respective requests meets the requirements of Articles 83 and 100(b) EPC.

### 3. *Novelty*

#### 3.1 Claim 1 of the Main Request

Claim 1 concerns a tablet of compacted detergent powder comprising a surfactant system comprising a nonionic surfactant, which comprises a condensation product of ethylene oxide with aliphatic alcohol, at least one detergency builder and, optionally other detergent ingredients, characterised in that at least 25% by weight of the alcohol from which the nonionic condensation product is derived has an alkyl chain length below C<sub>12</sub>, so that the average alkyl chain length is below C<sub>12</sub>.

Such tablets are however known from document (5).

The appellants submitted that there were no examples in document (5) disclosing tablets containing a nonionic surfactant as specified in Claim 1 and that there was no teaching in document (5) to use nonionic surfactants derived from alcohols having a chain length of C<sub>12</sub> or less as required by Claim 1 of the patent in suit (letter of 26 February 2001, page 2, lines 7 to 9).

The Board agrees that the nonionic surfactants of the examples of document (5) do not meet the requirements of Claim 1. In document (5) the nonionic surfactants of the examples are only defined by the ethoxylation degree (for instance "nonionic surfactant 7 EO"). However, the

technical disclosure in a prior art document has to be considered in its entirety, as it would be done by a person skilled in the art (T 4/83, OJ EPO 1983, 498, paragraph 4 of the reasons; T 198/84, OJ EPO 1985, 209; T 56/87, point 3.1; and T 124/87, OJ EPO 1989, 491, paragraph 3.2 of the reasons; T 666/89, point 5). Therefore, the evaluation of document (5) must not be confined to its examples (T 323/87, paragraph 2.2, 23 November 1990, unpublished, confirming T 424/86, paragraph 4.2, 11 August 1988, unpublished) but the whole technical content of document (5) has to be taken into consideration.

Document (5) discloses tablets of compacted detergent powder comprising an anionic detergent-active compound and a detergency builder. Optionally, other detergent-active material may be present, i.e. "anionic (soap or non-soap), cationic, zwitterionic, amphoteric, nonionic or any combination of these". Specific nonionic detergent components are in turn "the condensation products of linear or branched aliphatic C<sub>8-20</sub>-primary or secondary alcohols with ethylene oxide..." (page 2, lines 41 to 47 in combination with page 5, lines 56 to 57, and with page 6, lines 14 to 15 and line 24).

Thus, document (5) discloses directly and unambiguously (a group of) tablets of compacted detergent powder as defined in the non-characterising part of Claim 1 (see point I, above).

The fact that usually fatty alcohols are considered to be mixtures, for instance mixtures of C<sub>8</sub>-to C<sub>20</sub>-alcohols, does not exclude the possibility of using only octyl alcohols (i.e. 100% by weight), for instance 1-octanol

and 2-octanol, each having a chain length of 8 C-atoms (i.e. the average chain length is 8). Since octyl alcohols, i.e. 100% by weight of C<sub>8</sub>-alcohols, meet the requirements of "at least 25% by weight of the alcohol from which the nonionic condensation product is derived has an alkyl chain length below C<sub>12</sub>, so that the average alkyl chain length is below C<sub>12</sub>", document (5) discloses tablets which fall within the range of tablets claimed in Claim 1 of the patent in suit.

It follows that the subject-matter of Claim 1 is not novel and, thus, does not meet the requirements of Articles 52(1) and 54(1) EPC.

The main request must be rejected.

### 3.2 Claim 1 of the First Auxiliary Request

Claim 1 differs from Claim 1 of the main request in that the claim specifies that the surfactant system and the nonionic surfactant, respectively, are comprised in amounts of 5 to 50% by weight and 5 to 30% by weight of the tablet, and that at least one detergency builder is present in an amount of 5 to 80% by weight.

The reasoning under point 3.1 applies *mutatis mutandis* to the subject-matter of Claim 1.

Furthermore, document (5) discloses that the total amount of detergent-active material in the tablet is suitably from 2 to 50 wt%, and preferably from 5 to 40 wt%. Detergent active material may be nonionic (page 5, lines 55 to 57). Document (5) discloses also one or more detergency builders, suitably in an amount

of from 5 to 80 wt%, preferably from 20 to 80 wt% (page 6, lines 24 and 25).

The concentrations of the surfactant system (corresponding to "detergent-active material" in document (5)), nonionic surfactant and of the detergency builder reported above largely overlap with the range of Claim 1 and, therefore, the above mentioned additional features cannot distinguish further the claimed subject-matter. It follows that the tablets with these additional features, i.e. "from 5 to 50% by weight of a surfactant system comprising from 5 to 30% by weight of the tablet of nonionic surfactant" as well as "from 5 to 80% by weight of at least one detergency builder", are also anticipated by document (5).

The subject-matter of Claim 1 does not meet the requirements of Articles 52(1) and 54(1) EPC.

The first auxiliary request must be rejected.

### 3.3 Claim 1 of the Second Auxiliary Request

Claim 1 differs from Claim 1 of the first auxiliary request in that the claim specifies that the amount of alkali metal aluminosilicate is from 5 to 80 wt% (anhydrous basis).

The reasoning under point 3.1 applies *mutatis mutandis* to the subject-matter of Claim 1.

Furthermore, document (5) discloses that "alkali metal (preferably sodium) aluminosilicates may suitably be incorporated in amounts of from 5 to 60% by weight

(anhydrous basis) of the composition" (page 6, lines 29 and 30). Therefore, the concentration of alkali metal aluminosilicate cannot distinguish further the claimed subject-matter, and, thus, the tablets with this feature are anticipated by document (5).

The subject-matter of Claim 1 is not novel and, thus, does not meet the requirements of Article 54(1) EPC.

The second auxiliary request must be rejected.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

G. Rauh

P. Krasa